

5 What is claimed is:

1. In a bi-directional communication system, a method for communicating packetized data between different networks using hierarchical layers of communication protocols, comprising the steps of:

10           comparing a received IP packet destination address in a first protocol layer with a predetermined IP address to determine if there is an address match; and  
              redirecting a payload of said received IP packet from an Internet network to a local network in response to said address match by,  
              substituting a second protocol layer address for a received  
15 second protocol layer address.

2. A method according to claim 1, wherein if there is no address match said payload of said received IP packet is directed to a different destination than said local network to support a first Application operating  
20 concurrently with a different second Application being performed with said local network.

3. A method according to claim 2, wherein  
              said first Application is one of (a) a web surfing Application, (b) Email,  
25 (c) Internet phone/videophone, and  
              said second Application is one of (i) home appliance control, (ii) peripheral control and (iii) a diagnostic function.

3. A method according to claim 1, wherein  
30 said second protocol layer address is a (MAC) address.

4. A method according to claim 1, wherein  
              said bi-directional communication system is a cable modem and  
including the step of  
35           initiating an Application in response to receiving said redirected payload.

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5           11. A method according to claim 10, wherein  
said payload of said received IP packet is redirected from a first public  
Internet network to a second local network comprising one of (a) an Ethernet  
network, (b) a Universal Serial Bus (USB) network and (c) a Home Phoneline  
Networking Alliance (HPNA) network.

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          12. A method according to claim 6, wherein  
said redirecting step redirects a payload of said received IP packet from  
a first network to a communication buffer within said bi-directional communication  
device.

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          13. A method according to claim 12, wherein  
said redirecting step redirects a payload of said received IP packet from  
a first network to a communication buffer within said bi-directional communication  
device to support a local application comprising one or more of, (a) home appliance  
20 control, (b) peripheral control, (c) a communication function, (d) a diagnostic function  
and (e) secure private internet or intranet communication functions.

          14. A method according to claim 12, wherein  
for individual received IP packets said redirecting step redirects  
25 payloads of said received IP packets from a first network to a communication buffer  
within said bi-directional communication device by substituting said second protocol  
layer (MAC) address for a received second protocol layer (MAC) address.

          15. A method according to claim 12, wherein  
30 said bi-directional communication device is a cable modem.

          16. A method according to claim 6, wherein  
said second protocol layer (MAC) address is determined from a  
database mapping said received IP packet destination address to said second protocol  
35 layer (MAC) address.

          17. A method according to claim 6, wherein  
said second protocol (MAC) layer is a different hierarchical  
communication layer than said IP layer.

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5 18. In a bi-directional communication device using an Internet Protocol (IP), a method for initiating an Application, comprising the steps of:

conveying payload data of said received IP packet to a first destination  
10 in the absence of said address match; and

15            19. A method according to claim 18, wherein  
              said payload data of said received IP packet is conveyed to a  
              communication buffer within said bi-directional communication device to support said  
              Application.

20 20. A method according to claim 18 wherein  
said Application comprises one or more of, (a) home appliance control,  
(b) peripheral control, (c) a communication function, (d) a diagnostic function and (e)  
secure private internet or intranet communication functions.

25 21. In a bi-directional communication system, a method for communicating packetized data between different networks using hierarchical layers of communication protocols, comprising the steps of:

intercepting a domain name resolution request if a domain name matches a predetermined entry in a domain name database;

translating said intercepted domain name to a predetermined IP address;

30 and

redirecting a payload of a received IP packet destined for said predetermined IP address.

35            22. A method according to claim 21 wherein  
              said redirecting step includes the step of  
              substituting a different MAC layer address for a received MAC layer  
              address.

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23. A method according to claim 21 including the step of communicating said predetermined IP address to a requesting client.

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